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## Dialogic<sup>®</sup> Brooktrout<sup>®</sup> SR140 Fax Software with T38Fax.com SIP Trunking Service

Installation and Configuration Integration Note

## **IMPORTANT NOTE**

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#### 1. Scope

This document is intended as a general guide for configuring a T38Fax.com SIP trunk for use with the Dialogic<sup>®</sup> Brooktrout<sup>®</sup> SR140 Fax over IP (FoIP) software platform. The interoperability includes SIP call control with T.38/T.30 media.

This document is not intended to be comprehensive and thus does not replace the sip trunk provider's detailed configuration documentation. Users of this document should already be in the possession of a **T38Fax.com** account.

The sample configuration shown and/or referred in the subsequent sections was used for lab validation testing by Dialogic. Therefore, it is quite possible that the sample configuration will not match an exact configuration or versions that would be present in a deployed environment. However, the sample configuration does provide a possible starting point. Please consult with T38Fax.com's documentation for details on setting up your specific end user configuration.

For ease of reference, the Dialogic<sup>®</sup> Brooktrout<sup>®</sup> SR140 Fax Software and Dialogic<sup>®</sup> Brooktrout<sup>®</sup> TR1034 Fax Boards will sometimes be denoted herein, respectively, as SR140 and TR1034.. All references to the SDK herein refer to the Dialogic<sup>®</sup> Brooktrout<sup>®</sup> Fax Products SDK. The T38Fax.com SIP Trunking Service will sometimes be denoted herein as T38Fax.com or SIP Trunk, or some other form thereof.

#### 2. Configuration Details

The following systems were used for the sample configuration described in the document.

#### 2.1 T38Fax.com SIP Trunking Service

Vendor	T38Fax.com
Model	Power-T.38 SIP Trunking Service
Software Version	N/A
IP Device	Dialogic <sup>®</sup> Brooktrout <sup>®</sup> SR140 Fax Software
Protocol to SR140 Fax Software	SIP
Additional Notes	none

#### 2.2 Dialogic<sup>®</sup> Brooktrout<sup>®</sup> SR140 Fax Software

Vendor	Dialogic
Model	Dialogic® Brooktrout® SR140 Fax Software
Software Version	Tested with SDK 6.6.0
Protocol to Gateway or Call Manager	SIP
callctrl.cfg file	Use all the defaults

#### 2.3 Dialogic® Brooktrout® TR1034 Fax Board

Vendor	Dialogic
PSTN Device	Dialogic® Brooktrout® TR1034 Fax Board
Software Version	SDK 6.5.0
Protocol to PSTN Device	Analog Loop Start
callctrl.cfg file	All defaults

#### 2.4 Network System Configuration

The diagram below details the sample configuration used in connection with this document. On the IP side, the SR140 was configured to send and receive T.38 faxes. On the PSTN side, the TR1034 board was configured to send and receive T.30 faxes over an analog loop start connection. Carrying traffic between the two was the T38Fax.com SIP Trunk. Testing consisted of the full suite of interop calls between the two endpoints: first the SR140 sending and the TR1034 receiving and then the TR1034 sending with the SR140 receiving.



#### **Diagram Notes:**

SR140 Fax Server = Fax Server including Dialogic® Brooktrout® SR140 Fax Software and third party fax application

The SR140-based fax server will reside behind a NATed router firewall and will have a private IP address. The T38Fax.com SIP trunking service will perform the far-end NAT translation for the proper routing.

IMPORTANT: If your firewall features a SIP Application-Level Gateway (ALG) that could interfere with SR140's communication with T38Fax.com, it should be disabled.

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#### 3 Prerequisites

None

#### 4 Summary of Limitations

None

#### 5 T38Fax.com SIP Trunk Setup Notes

For the sample test configuration, the T38Fax.com SIP Trunk was configured as described below.

5.1 Network Addresses

Device #	Device Make, Model, and Description
1	sip.t38fax.com proxy / SIP registrar server

#### 5.2 T38Fax.com SIP Trunk Configuration

There is no need to configure the IP trunk itself. *T38Fax.com* will provide the hostname of the proxy server. The provided hostname should be used as the "Primary Proxy Server" when setting up the SR140 software.

#### 6 Brooktrout® SR140 Fax Software Setup Notes

The *Installation and Configuration Guides* for the SR140 are available from the following site: <u>http://www.dialogic.com/manuals/brooktrout/default.htm</u>

Please note that if you plan to place your fax server behind a firewall or other such NAT device, your outgoing SIP registration to T38Fax.com should automatically open and maintain the necessary connections for all bidirectional network traffic. If for any reason T38Fax.com's automatic NAT traversal does not work, you may need to manually open those ports.

Dialogic SR140 Ports:

- Port 5060 SIP signaling port
- Port 8080 TCP port for HTTP (license activation required for automatic registration via Internet; otherwise, manual registration via Dialogic Website is required)
- Ports 56000 to 57000 UDP ports for FoIP traffic (configurable)

The following SR140 Setup Wizard screen shots illustrate how the test configuration was setup to interop with the T38Fax.com SIP Trunking Service. Launch the Config Tool (Start->Programs->Brooktrout->Brooktrout Configuration Tool



#### Select Advanced Mode.

Brooktr	out Configuration Tool - Question 🛛 🛛 🕅		
2	You chose to launch the tool in Advanced Mode and exit the Wizard Mode. Do you want to continue?		
	Yes No		

Select Yes to enter Advanced Mode.

🕼 Brooktrout Configuration Tool - Advanced Mode				
File View Options Help				
Image: Constraint of the sector of the s	Icense I			
Brooktrout (Boston Host Service - Stopped) Driver Parameters (All boards) BTCall Parameters (All boards) Call Control Parameters Module 0x41: SR140	Note: If you are intending to configure an SR140 only, you must first activate a license using the License Manager. This page contains essential information to use the tool effectively. You can get to this name any time by clicking on the <b>Hame</b> icon on the toolbar. The user interface consists			
Er Lai Lontroi Modules I SIP	of two views: (a) the explorer view and (b) the content view. The explorer view allows you to navigate through the various configurable components of Brooktrout Hardware and Software. The content view contains either informational content such as this page or controls that allow you to fine tune the Brooktrout components.			
	In this mode you can: • Edit call control configuration per module. • Edit the btcall parameters. • Edit the device driver parameters. • Save the configuration information. • And finally apply the configuration.			
	Please note that you must <b>apply</b> the configuration information for the changes to take effect. The <b>apply</b> action is available from the toolbar as well as from the <b>Options</b> menu.			
	Under normal conditions (that is, all Brooktrout hardware installed on your system has the same ship level number programmed on them), the configuration tool should come up in the <b>Wizard Mode</b> . It can also be launched explicitly to come up in the advanced mode by using /a oradvanced command line option. If you did not specify this option and the tool came up in in this mode, it is because hardware detected by the tool required			

Select SIP under IP Call Control Modules and open the IP Parameters Tab

Brooktrout Configuration Tool -	- Advanced	Mode	<u>اس</u>	3 2	
File View Options Help					
Home Back Next Save	Apply	S ? License Help			
Brooktrout (Boston Host Service - F	Running)	General Information IP Parameters T.38 Parameters RTP Parameters			
- BTCall Parameters (All boards)		Maximum SIP Sessions:	256	-	
Call Control Parameters Madulo 0x411 SP140		Primary Gateway:	0		
IP Call Control Modules		Primary Prover	ein t 39fax com	60	
SIP		Additional Provide Server #2			
		Additional Prove Convertion	0,	_	
				_	
		Builden Breither Course UDI		-	
			spitadax.com	160	
		Additional Registrar Server #2:			
		Additional Registrar Server #3:			
		Additional Hegistrar Server #4:	:]0	_	
		From Value:	test <sip:sr140@192.168.1.15></sip:sr140@192.168.1.15>		
		Contact IPv4 Address:	192 . 168 . 1 . 15 . 5060		
		Usemame:	-		
		Session Name:	no_session_name		
		Session Description:			
		Description URI:			
		Email Address:			
		Phone Number:		1	
		Advanced Settings			
		Do not change these parameters unless you have been instructed to do so			
		Primary Registrar Server Address of Record:	sr140interop@sip.t38fax.com		
		Primary Registrar Server Usemame:	sr140interop		
		Primary Registrar Server Password:		_	
		Primary Registrar Server Expiration:	3600	-	
		Additional Registrar Server #2 AOR:			
		Additional Registrar Server #2 Usemame:			
		Additional Registrar Server #2 Password:			
		Additional Registrar Server #2 Expiration	3600	_	
		Additional Registrar Server #3 40.8		_	
		Additional Benistrar Server #3 Usemame:			
		Additional Desixter Server #3 Descuard:			
			2000	_	
		Additional Registrar Server #3 Expiration:	3600		
		Additional Registrar Server 774 AUR:			
		Additional Registrar Server #4 Usemame:			
		Additional Registrar Server #4 Password:			
		Additional Registrar Server #4 Expiration:	3600		
		Registration Interval:	60		
		Registration Interval Delta:	5 0 60		
		Registration Proxied:	No	•	
		Maximum Forwards:	70 1 200		
		Contact IPv6 Address:	0		
		Route URL:			
				-	

- Change Primary Proxy Server to sip.t38.com
- Change Primary Registration Server URL to sip.t38.com
- Change From Value to <userID>@sip.t38fax.com (example: 12155551212@sip.t38fax.com)
- Change Primary Registrar Server Address of Record to <userID>@sip.t38fax.com
- Change **Primary Registrar Server Username** to the **<userID>** provided byT38Fax.com.
- Change **Primary Register Server Password** to the **<password>** provided byT38Fax.com.

Select SIP under IP Call Control Modules and open the T.38 Parameters tab



- Confirm that Fax Transporting Protocol is set to T.38 only
- Confirm that Generate CED tone over RTP is set to YES
- Confirm that Maximum bit rate bps is set to 14400

Select SIP under IP Call Control Modules and open the RTP Parameters tab

Brooktrout Configuration Tool - Advance	ed Mode		- 0 <b>- X</b> -
File View Options Help			
tional constant and the second secon	Cicense Help		
Home Back Next Save Apply ⊡ Brocktrout (Boston Host Service - Running) □ Driver Parameters (All boards) □ - BTCall Parameters (All boards) □ - BTCall Parameters (All boards) □ - Call Control Parameters □ - Module (X41: SR140 □ - IP Call Control Modules □ - SIP	License     Help       General Information     IP Parameters     T.38 Parameters     RTP Parameters        RTP codec lat:     Silence Control:           Frame Duration:     Jitter Buffer Depth:     T.38 offer as CED tone:	pomu poma     Inband     Advanced Settings     Do not change these parameters unless you have been instructed to do so     20     100	v V Hide Advanced <<

- Confirm that **RTP codec list** is set to **pcmu pcma** Confirm that **Silence Control** is set to **inband** ٠
- •

Click **Save** and then close the Configuration Tool.

#### 7 Dialogic<sup>®</sup> Brooktrout<sup>®</sup> SR140 Fax Software Setup Notes

The Installation and Configuration Guide used to set up the SR140 is available from the site below:

http://www.dialogic.com/manuals/brooktrout/default.htm

The SR140 callctrl.cfg file used in the sample test configuration is shown below for reference.

api\_trace=verbose internal trace=verbose 1314 trace=verbose I4I3\_trace=verbose host module trace=verbose ip\_stack\_trace=warning vtty\_trace=true max\_trace\_files=1 max\_trace\_file\_size=100 trace\_file=test\_0004\_ecc.log [host\_module.1] module\_library=brktsip.dll enabled=true [host\_module.1/t38parameters] t38\_fax\_rate\_management=transferredTCF fax\_transport\_protocol=t38\_only t38\_fax\_udp\_ec=t38UDPRedundancy rtp ced enable=true t38\_max\_bit\_rate=14400 t38\_fax\_version=0 media\_passthrough\_timeout\_inbound=1000 media\_passthrough\_timeout\_outbound=4000 media\_renegotiate\_delay\_inbound=1000 media\_renegotiate\_delay\_outbound=-1 t38\_fax\_fill\_bit\_removal=false t38\_fax\_transcoding\_jbig=false t38\_fax\_transcoding\_mmr=false t38\_stream\_renegotiation=single t38 t30 fastnotify=false t38 type of service=0 t38\_UDPTL\_redundancy\_depth\_control=5 t38\_UDPTL\_redundancy\_depth\_image=2 [host\_module.1/rtp] rtp\_frame\_duration=20 rtp\_jitter\_buffer\_depth=100 rtp\_codec=pcmu pcma rtp\_silence\_control=inband t38\_offer\_as\_ced=true rtp\_type\_of\_service=0 rtp\_voice\_frame\_replacement=0 [host\_module.1/parameters] sip\_max\_sessions=256 sip\_default\_gateway= sip\_proxy\_server1=sip.t38fax.com:5060 sip\_proxy\_server2= sip\_proxy\_server3= sip\_proxy\_server4= sip\_registration\_server1=sip.t38fax.com:5060 sip\_registration\_server1\_aor=12155551212@sip.t38fax.com sip\_registration\_server1\_username=12155551212 sip\_registration\_server1\_password=XXXXXXX sip\_registration\_server1\_expires=3600 sip\_registration\_server2=

sip registration server2 aor= sip\_registration\_server2\_username= sip\_registration\_server2\_password= sip\_registration\_server2\_expires=3600 sip\_registration\_server3= sip\_registration\_server3\_aor= sip\_registration\_server3\_username= sip registration server3 password= sip\_registration\_server3\_expires=3600 sip\_registration\_server4= sip\_registration\_server4\_aor= sip\_registration\_server4\_username= sip\_registration\_server4\_password= sip\_registration\_server4\_expires=3600 sip\_registration\_interval=60 sip\_registration\_interval\_delta=5 sip\_registration\_proxied=false sip Max-Forwards=70 sip\_From=12155551212@sip.t38fax.com sip\_Contact= sip\_ContactV6= sip\_username=sip\_session\_name=no\_session\_name sip\_session\_description= sip description URI= sip email= sip\_phone= sip\_Route= sip\_session\_timer\_session\_expires=0 sip\_session\_timer\_minse=1800 sip\_session\_timer\_refresh\_method=0 sip\_ip\_preference=ipv4\_only sip\_ip\_interface= sip\_ip\_interfaceV6= sip\_ip\_interface\_port=5060 sip\_ip\_interface\_portV6=5060 sip\_redirect\_as\_calling\_party=0 sip T1 timeout=500 sip\_max\_invite\_retransmissions=7 sip\_redirect\_as\_called\_party=0 sip\_tcp\_enable=false sip\_user\_agent=Brktsip/6.6.0B2 (Dialogic) sip\_RFC3325\_Identity=0 sip\_transport\_protocol=udp sip\_reject\_call\_not\_answered=486 sip\_reject\_unsupported\_media=488 sip\_reject\_t38\_renegotiation=488 [module.41] model=SR140 virtual=1 exists=1 vb\_firm=C:\fdtool-6.6.0\bin\bostvb.dll channels=2 [module.41/ethernet.1] ip\_preference=ipv4\_only ip\_interface={CA94E576-741B-4B17-BAB2-2EA99F8842ED}:0 ip\_interfaceV6= ip\_address=0.0.0.0 ip\_addressV6= media\_port\_min=56000 media\_port\_max=56999 [module.41/host\_cc.1]

host\_module=1 number\_of\_channels=2

#### 8 Dialogic<sup>®</sup> Brooktrout<sup>®</sup> TR1034 Setup Notes

For the sample test configuration, the TR1034 was configured using the default values with V.34 disabled, consult the *Dialogic® Brooktrout® Fax Products Installation and Configuration Guide* for details.

http://www.dialogic.com/manuals/brooktrout/default.htm

#### 9 Frequently Asked Questions

- "I'm configured as near as possible to this the sample configuration described in this document, but calls are still not successful; what is my next step?"
  - → Confirm that basic network access is possible by pinging the gateway.
  - → Contact T38Fax.com's support team.
- "How do I obtain Wireshark traces?"
  - ➔ The traces can be viewed using the Wireshark network analyzer program, which can be freely downloaded from <u>http://www.wireshark.org</u>.
  - ➔ To view the call flow in Wireshark, open the desired network trace file and select "Statistics->VoIP Calls" from the drop down menu. Then highlight the call and click on the "Graph" button.
- "I try to call the SR140 port, but I get a network busy why?"
  - ➔ It's possible you do not have the proper ports open on your firewall. Check settings against the above recommendations and be sure your efforts match up.